

<p style="text-align: center; font-weight: bold; font-size: 1.2em;">Notice of Allowability</p>	<p>Application No. 10/578,405</p> <p>Examiner SHAFIQUEL HAQ</p>	<p>Applicant(s) BARCHI ET AL.</p> <p>Art Unit 1641</p>
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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Applicant's amendments and arguments filed 1/14/2010.

2. ☒ The allowed claim(s) is/are 17-19 and 22, now renumbered as 1-4.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

<p>Attachment(s)</p> <p>1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>2. <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)</p> <p>3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____</p> <p>4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material</p>	<p>5. <input type="checkbox"/> Notice of Informal Patent Application</p> <p>6. <input checked="" type="checkbox"/> Interview Summary (PTO-413), Paper No./Mail Date <u>4/23/2010</u> .</p> <p>7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment</p> <p>8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance</p> <p>9. <input type="checkbox"/> Other _____.</p>
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<p>/Shafique Haq/ Primary Examiner, Art Unit 1641</p>	
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DETAILED ACTION

1. Applicant's arguments and amendments filed 1/14/2010 are acknowledged.

Examiner's amendment

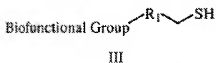
2. Authorization for this examiner's amendment was given in a telephone interview with Jeffrey Rosedale on April 23, 2010.

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

3. Claim 17 has been amended as follows:

Replace claim 17 with the following:

--A method for producing a biofunctionalized quantum dot, comprising:
refluxing simultaneously a biofunctional group-thiol of Formula III



and a mercaptoalkanoic acid, a cadmium salt, a hydrogen-alkali-selenide or hydrogen-alkali-telluride, and a suitable solvent to produce a quantum dot in a solution,

wherein R₁ comprises a hydrocarbon, and

wherein the biofunctional group comprises a saccharide.--

4. Claim 19 has been amended as follows:

In claim 19, line 1, after the words "The method of claim 17," replace the words "further comprising" with the words --wherein the biofunctional group-thiol of Formula III is produced by--.

5. Claim 22 has been amended as follows:

In claim 22, line 1, after the words "A method according to claim 17," replace the words "further comprising" with the words --comprises:

providing a biofunctional group-thiol of Formula VI by --.

In claim 22, line 10 (i.e. the line after the compound of formula VI), after "refluxing", insert the word --simultaneously--.

6. Claims 1-16 and 23-29 have been cancelled.

Allowable Subject Matter

7. The following is an examiner's statement of reasons for allowance: The closest prior art of record {Bawendi *et al* (US 6,855,551 and Mitchel *et al* (J. Am. Chem. Soc. 1999)) do not teach or reasonably suggest a method of producing a biofunctionalized quantum dots by refluxing simultaneously a biofunctional group-thiol of Formula III, a mercaptoalkanoic acid, a cadmium salt, a hydrogen-alkali-selenide or hydrogen-alkali-telluride, and a suitable solvent to produce a quantum dot in a solution, and wherein the biofunctional group comprises a saccharide. Bawendi *et al* teach cdse nanoparticle having thiolated biofunctional groups on the nanoparticle (See Fig. 8 and 9 and Examples 3 & 10) but do not teach synthesis of the biofunctionalized quantum dots by refluxing simultaneously the thiolated

biofunctional group, mercapto alkanolic acid, a cadmium salt, a hydrogen-alkali-selenide or hydrogen-alkali-telluride, and a suitable solvent to produce the quantum dot. Mitchel *et al* also teach biofunctionalized quantum dots (cdse) wherein the process step first requires attachment of mercapto alkanolic acid to cdse quantum dots and then subsequent immobilization of alkylthiol-capped oligonucleotides to provide the biofunctionalized quantum dots but simultaneous reaction of all the components are not required in the method of preparing the quantum dot.

Conclusion

8. Claims 17-19 and 22, now renumbered as 1-4 are allowed.
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shafiqul Haq whose telephone number is 571-272-6103. The examiner can normally be reached on 7:30AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark L. Shibuya can be reached on 571-272-0806. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

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Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Shafiqul Haq/
Primary Examiner, Art Unit 1641